



Superior Clamping and Gripping



Product data sheet

Compensation unit PCFC

Compliant. Flexible. Compact.

Pneumatic Z-compensation unit

Pneumatic, axial compensation unit for flexible adjustment of compensation or contact forces

Field of application

Flexible use possible in the automation of machining processes, as different tools such as a saw, a bench grinder, a belt or angle grinder, a screwdriver, riveting pliers or other tools can be attached to the tool side adapter plate or within the large central bore. Integrated measuring of the current position and a constantly adjustable contact force ensure a stable process and reproducible results.

Advantages – Your benefits

Compensation can be adjusted by means of a double-action pneumatic cylinder for a constant contact force

Integrated path-measuring system for monitoring and control of the process

Integrated weight force compensation for constant pressure forces independent of the orientation of the tool, especially in robot-guided applications

Flexibility in axial direction for a simplified robot programming

Simple extension of the force range by adjusting the piston configuration

Versatile in use due to the option of screwing customer tools onto the adapter plate or into a through-bore

Compact design for minimum installation height



Sizes
Quantity: 1



Compensation Z
12 mm

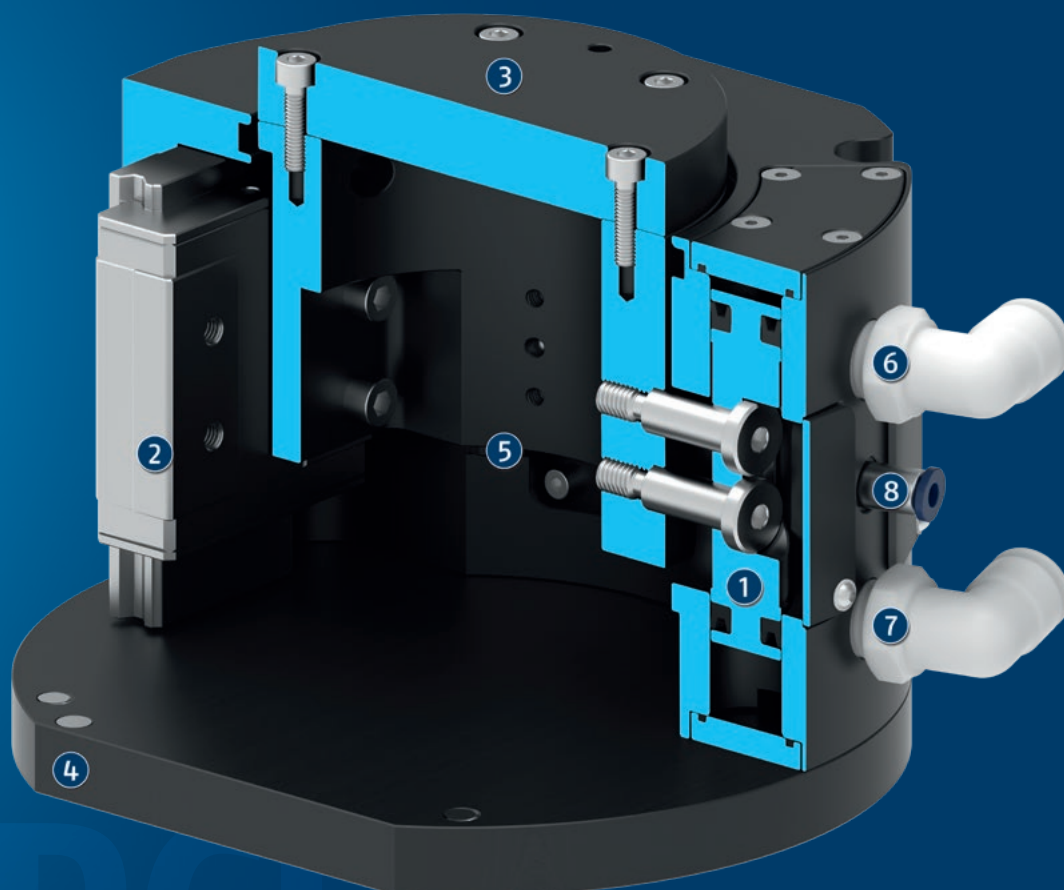


Max. compensation
force
85 .. 240 N

Functional description

The compensation unit is operated by a double-acting pneumatic cylinder and has axial flexibility. The compensation force is set via the applied operating pressure and can therefore also be adjusted dynamically. The contact force can be controlled separately in two directions (retracting and extending) via two air connections. Depending on the piston configuration, a variable contact

force can be achieved. Due to the integrated stroke measuring system, the position of the compensation unit is confirmed via an analog signal and can be used for further process control. The built-in gyro sensor can be used to keep the compensation force constant regardless of the position.



- ① Piston
- ② Linear guide
- ③ Mounting
for tool provided by customer
- ④ Robot-side connection
- ⑤ Integrated path-measuring system
- ⑥ Retract air connection compensation
- ⑦ Extend air connection compensation
- ⑧ Air purge connection

General notes about the series

Mounting: on the robot arm or as a stationary unit

Actuation: pneumatic, via filtered ($< 5 \mu\text{m}$, dry) and unoiled compressed air

Warranty: 24 months

Ambient conditions: Please note that the unit is not suitable for use in an area where coolants or cutting fluids are present.



Application example

Clean processing of edges of a lasered workpiece with constant pressure force, independent of the orientation of the robot. Also suitable for stationary use.

① Passive Compliant Force Control Tool PCFC with customer's mini grinder

② Passive Compliant Force Control Tool PCFC for stationary use with customer's bench grinder

③ Universal gripper PGN-plus-P

④ Workpiece

SCHUNK offers more ...

The following components make the product even more productive – the suitable addition for the highest functionality, flexibility, reliability, and controlled production.



Quick change system



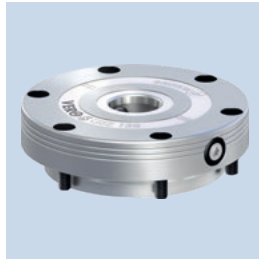
Manual change system



Force/torque sensor



2-finger parallel gripper



Quick-change pallet system



Clamping force block



3-Finger Centric Gripper

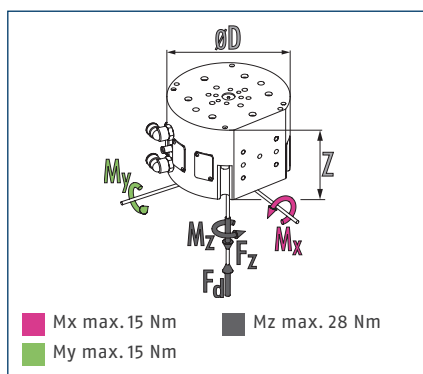
① For more information on these products can be found on the following product pages or at [schunk.com](https://www.schunk.com).

PCFC 12

Compensation unit



Dimensions and maximum loads

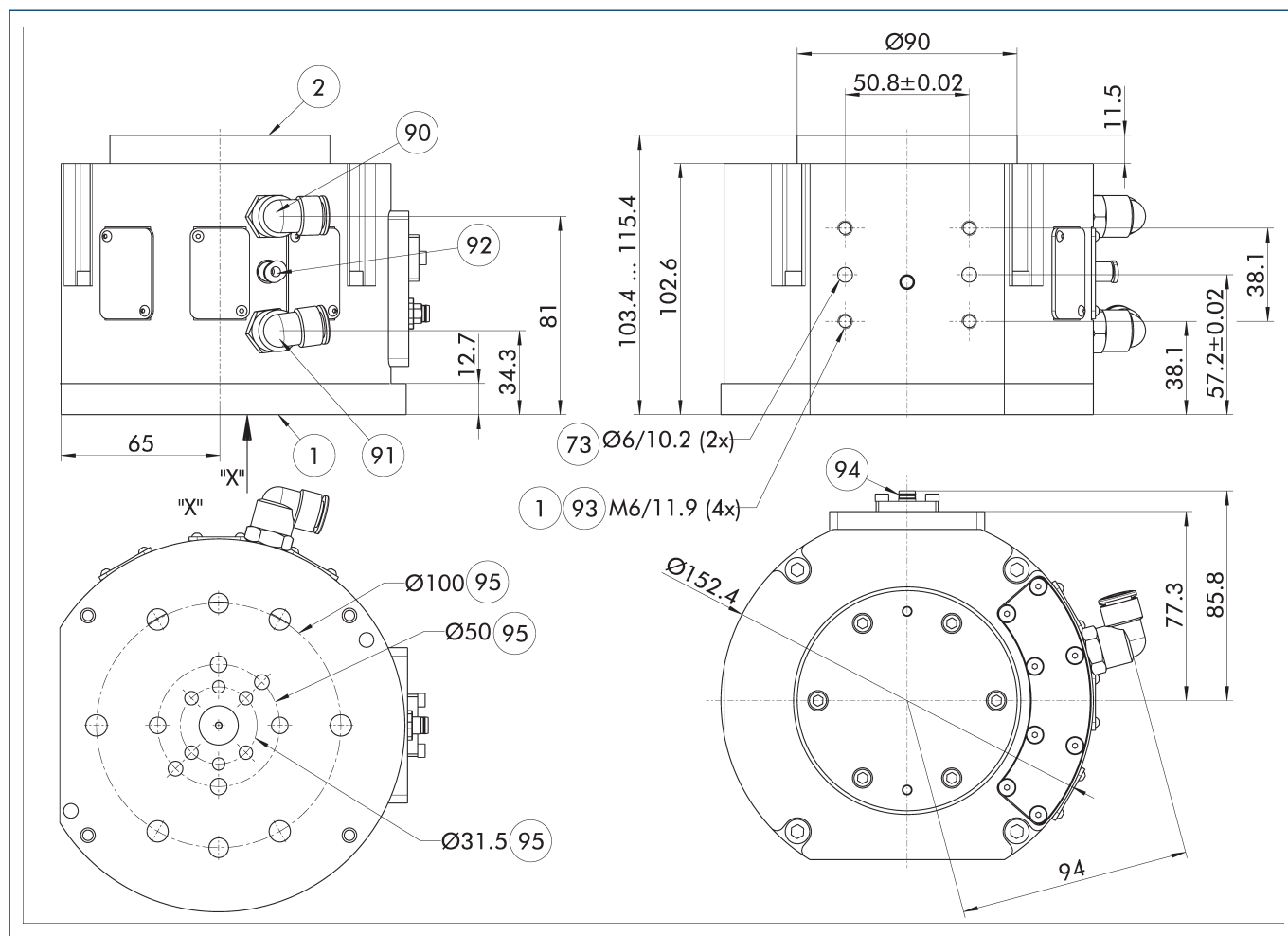


Technical data

Description		PCFC-12-A	PCFC-12-B	PCFC-12-C
ID		1453546	1453552	1453555
Compensation Z	[mm]	12	12	12
Min./max. compensation force	[N]	18/85	44/170	49/240
Weight	[kg]	3.54	3.58	3.63
Min./max. compensation pressure	[bar]	1/4.1	1/4.1	1/4.1
Weight force compensation		integrated	integrated	integrated
Retract air connection compensation		10 mm	10 mm	10 mm
Extend air connection compensation		10 mm	10 mm	10 mm
Air purge connection		4 mm	4 mm	4 mm
Communication interface		RS-485	RS-485	RS-485
Min./max. ambient temperature	[°C]	5/35	5/35	5/35
Dimensions Ø D x Z	[mm]	152.4 x 115.4	152.4 x 115.4	152.4 x 115.4
Options and their characteristics				
Variant with motor kit		PCFC-12-A-V750		
ID		1521945		
Power	[W]	750		
Idle speed	[1/min]	15000		
Nominal speed	[1/min]	11000		
Operating pressure motor	[bar]	6.2		
Max. air consumption	[l/min]	905		
Tool holder		Collet ER-11 6 mm		
Air connection motor		10 mm		
Weight	[kg]	4		

① The additionally required proportional control valves for gravity compensation are to be provided by the customer.

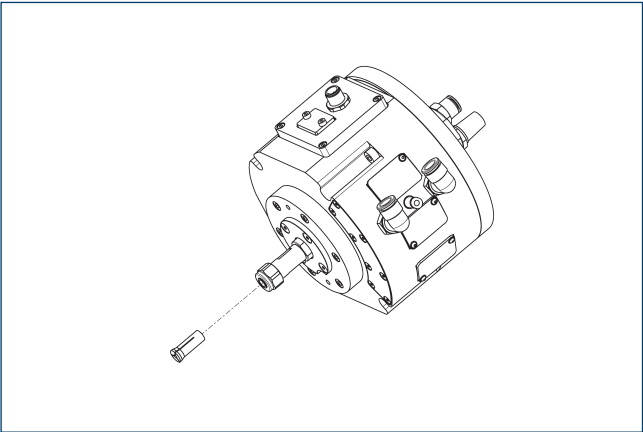
Main view



The main view shows the unit in its basic version.

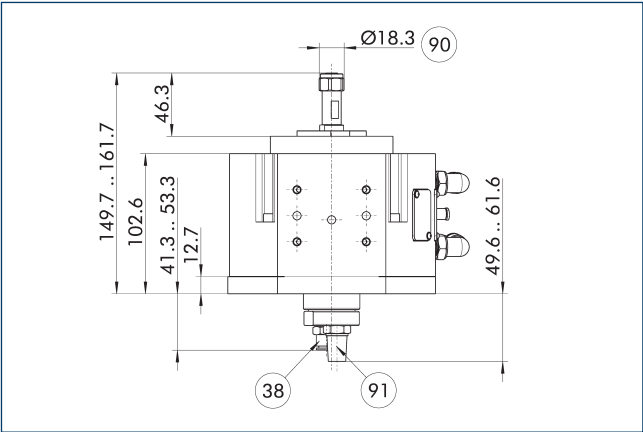
- | | |
|--|---|
| ① Robot-side connection | ⑨② Air purge connection, hose screw connection for 4 mm hose |
| ② Tool-side connection | ⑨③ radial mounting option |
| ⑦③ Fit for centering pins | ⑨④ Sensor connection |
| ⑨① Extend air connection compensation, hose screw connection for 10 mm hose | ⑨⑤ Bolt circle DIN ISO-9409 (centering collar optionally available) |
| ⑨② Retract air connection compensation, hose screw connection for 10 mm hose | |

Optional collets for the motor kit



Description	ID	Diameter
Collet Chuck Mounting		
RCV-ER-11-Collet-6mm	1453567	6 mm
RCV-ER-11-Collet-8mm	1453568	8 mm

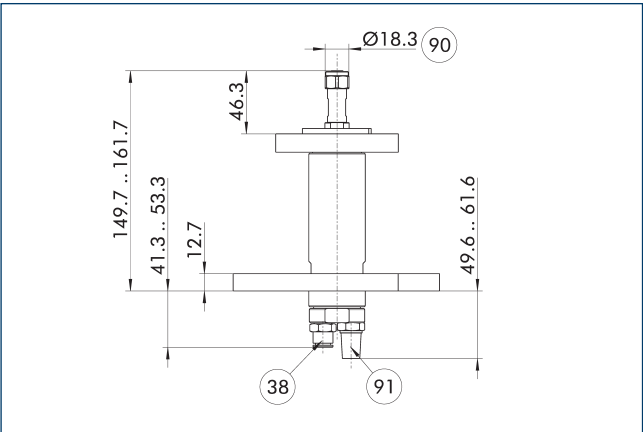
PCFC with pneumatic motor 750 Watt



- 38 Air connection spindle
- 91 Silencer
- 90 Tool holder

The drawing shows the variant with motor kit.

Motor kit 750 watt for retrofitting

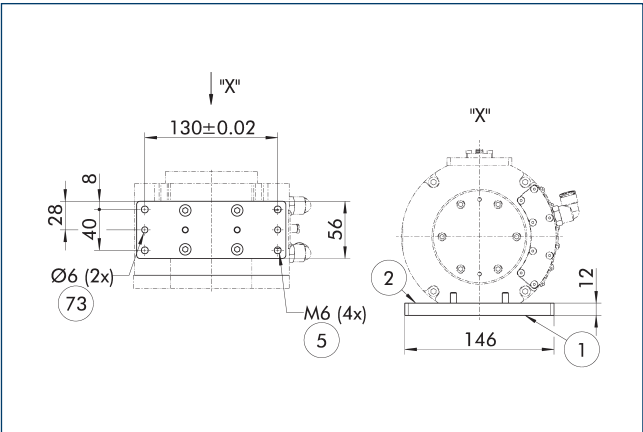


- 38 Air connection spindle
- 91 Silencer
- 90 Tool holder

Description	ID	
Retrofitting kit		
PCFC-Motor-Kit-V750	1519935	

1 Motor kit for retrofitting to PCFC

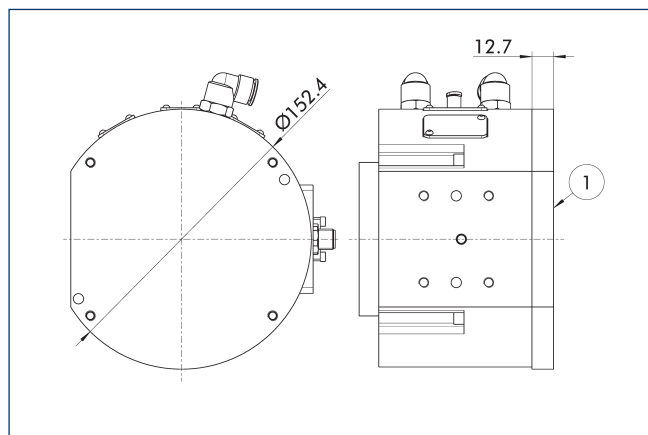
Adapter plates, radial



- 1 Robot-side connection
- 2 Tool-side connection
- 5 Through hole for connection with screws
- 73 Fit for centering pins

Description	ID	
Adapter plate		
A-PCFC-Radial	1453559	

Adapter plates axial



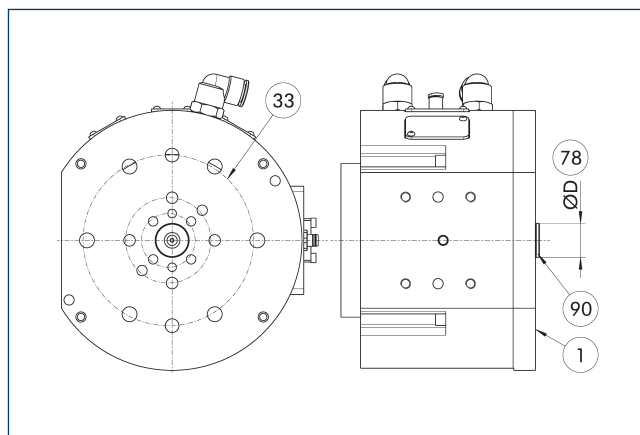
① Robot-side connection

Unfinished tool-side adapter to be machined by the customer.

Description	ID
Adapter plate	
PCFC-E-Deckelplatte-BLANK	1507487

① When using the blank adapter plate, the standard mounted adapter plate must be disassembled beforehand.

Centering disc



① Robot-side connection

③③ DIN ISO-9409 bolt circle

⑦⑧ Fit for centering

⑨⑩ Centering disc

Description	ID	Diameter D	DIN ISO-9409 bolt circle
		[mm]	[mm]
Centering disc			
A-PCFC-BOSS 31.5 mm	1507674	31.5	50
A-PCFC-BOSS 63 mm	1507675	63	100
A-SWK-007-CM/PCFC-BOSS 20mm	1398809	20	31.5

① Serves as a fitting collar for centering on mechanical interfaces, e.g. on the robot with flange in accordance with ISO 9409.



SCHUNK GmbH & Co. KG
Spann- und Greiftechnik

Bahnhofstr. 106 - 134
D-74348 Lauffen/Neckar
Tel. +49-7133-103-0
Fax +49-7133-103-2399
info@de.schunk.com
schunk.com

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